Correct Wire for Aerial

# The Tribune Radio—Comment and Advice—By Jack Binns

# Described

Is Mor In portant Element of ac im Tube, as It Co , the Action of De r and Amplifier

Grid ak Also Important

Important Grid Condenser

these excessive charges to leak off easily and at the same time prevent any accumulation that would reduce the efficiency of the tube or choke it

Of course, this grid leak and grid condenser are only used in connection with the vacuum tube where the tube

Standard Equipment Is Trend

all of the parts are adjustable, and this course applies to the grid leak and the grid condenser. It is perfectly fessible to get good results, absolutely good results, with a fixed grid condenser and a fixed grid leak; but on the other hand absolute maximum results can be obtained by having both of these instruments variable, the drawback being that it adds two more adjustments necessary to make in a series of circuits that the translations and the series of circuits that the translations and the series of circuits that the translations are series of circuits that the series of circuits the series of circuits that the series of circuits and the series of circuits t

## Grid Function First Aid for the Radio Enthusiast Radio Survey Shows Rapid Growth Over

How to Make Short-Wave Vario-Coupler; Indoor Aerial Around a Living Room; Describing a Lightning Protector Device

Lightning Protection

De r and Amplifier

Grid ak Also Important

Important Grid Condenser and Leak Are Made of the Simplest Materials

The mest important element in the acuum tube is the grid, and as the acuum tube its the grid, and as the state instrument fix a receiving set, the state in the fighting from coming into the house, as the connection from the lighting from coming into the house, as the connection from the lighting from coming into the house, as the connection from the lighting from coming into the house, as the connection from the lighting from coming into the house, as the connection from the lighting from coming into the house, as the connection from the lighting from coming into the house, as the connection from the lighting from coming into the house, as the connection from the lighting from coming into the house, as the connection from the lighting from coming into the house, as the connection from the lighting from coming into the house, as the connection from the lighting from coming into the house, as the connection from the lighting from coming into the house and the connection from the lighting from coming into the conn

#### Making a Vario-Coupler

Cuestion—I am going to construct a receiving station with a range of 100 to 1,000 meters or thoreabouts. Please answer the following questions and oblige: 1. What size vario-coupler should be used? 2. What size ticker (to be adjusted by taps only) should I use? 3. What size ticker to be adjusted by variable condenser shall I use? 4. What size to be used answers should be accompanied by a stamped and self-addressed envariable condenser shall I use? 4. What size to be used in coupler the better? Please give all necessary information concerning size of wire, number of turns, etc., required on the coils. 6. An audion detector is going to be used—R. C. H.

Answer—A vario-coupler for this

where the trigger is to the good and colored the action of the tube. In order that this function should operate successfully, it is necessary that the circle connected to the grid should contain a grid condenser and a grid leak. It can take the target and the condenser used in radio work. It can consist of two plates one square inch farst ten taps and then each subsections for two plates one square inch farst enten special to another the state of the samples of the state of the sta

of incoming electric oscillations, when a vacuum tube is being employed as an amplifier the tube naturally is performing an entirely different function and, of course, operates in an entirely different manner. Consequently, the grid leak and grid condenser are not seemed as an amplifier the tube naturally is performing an entirely different manner. Consequently, the grid leak and grid condenser are not seemed as a special type "B" pattery dry condenser, due to the leave the cach. For the purpose of advertising, pacity in all coils of wire. I could not tell you offhand whether your circuit will function without a condenser, because I do not know just what kind of a circuit you are using. 11. Under the recent ruling of the National Board

Let The Tribune Help You Solve Your Radio Problems

F YOU are experiencing difficulty Jack Binns, the Tribune Radio, 154 Nassau Street, New York City. In your letter state what your trouble is, what kind of apparatus you are using and any other facts you think necessary. If you desire to install a receiving set and need advice write to the Tribune Radio, stating whether you live in an apartment or a private house, and if outside the city your distance from New York. Questions of general interest will be answered in this department every Sunday. Requests for personal answers should be accompanied by a stamped and self-addressed envelope.

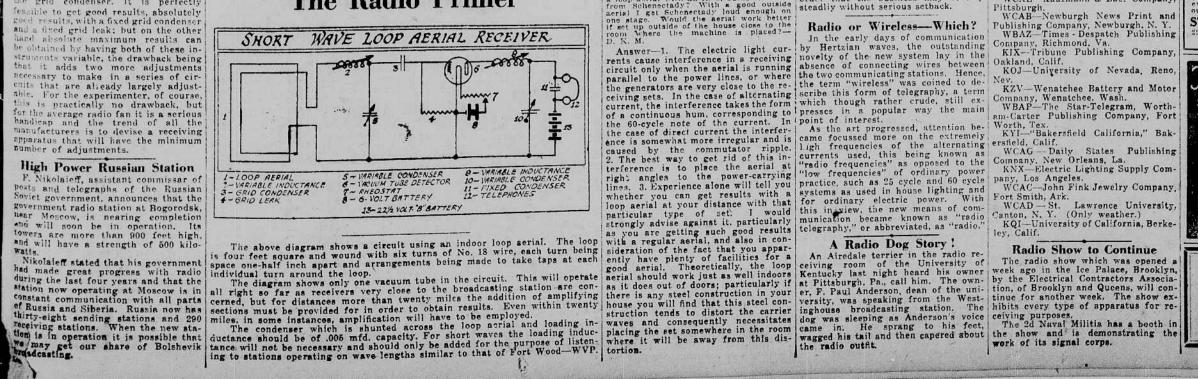
reflately saft lead pencil, by simple entities a make type a price of the mark. The graphite on the pencil will form a pathway exceen the true terminals of a price of the mark. The graphite of the pencil will form a pathway exceen the true terminals of a price of the mark. The graphite of the pencil will form a pathway exceen the true terminals of a price of the pencil will form a pathway of the pencil will be pencil will be considered as a major of the pencil will be considered as a major of the pencil will be considered as a major of the pencil will be considered as a major of the pencil will be considered as a major of the pencil will be considered as a major of the pencil will be possible to entire the pencil will ton for the pleasure and profit of their depositors?—A. D. P.

Answer—A great deal will depend upon two factors: First, the building itself, and second, the distance from the nearest broadcasting station. In order to get good results I would suggest that you use in each case a regenerative receiver with a vacuum tube detector and two stages of amplification. The latter should be so constructed that the transformers, which are in the audio-frequency amplifying section of the equipment, will stand the voltage used with two 5-watt power amplifiers. In other words, about 150 volts on the plate circuit. As there is very little current with this voltage, the 150 volts can be obtained by means of this special type "B" battery dry cell, which come in units of 22 1-2 volts each. For the purpose of advertising, this of course would have to have a great at lightling switch over to the ground connection, whereas with an arrester such an operation is unnecessary and you are consequently protected all of the time. 5. The above answer also covers this question. 6. The wave length of your aerial is approximately 120 meters. 7. Within certain limitations it is much better to have a serial as high and clear as possible in order to get good results. 8. WJZ is approximately eighteen miles from you. 2XB is about a mile. 9. The condenser is a very important instrument in radio work, as it gives the necessary amount of capacity to the circuit to balance the inductance and make the circuit reconnant. 10. A circuit to balance the inductance and condenser, due to the fact that there is a certain amount of distributed capacity in sll coils of wire. I could be a certain amount of distributed capacity in sll coils of wire. I could be a certain amount of distributed capacity in sll coils of wire. I could be a certain amount of distributed capacity in sll coils of wire.

of a circuit you are using. 11. Under the recent ruling of the National Board Standard Equipment is Trend

The modern practice in the design of radio receiving equipment is to produce standard apparatus that will operate at a certain average performance under every and all conditions, and the consequence is that all manufactured grid leaks are of a standard value of resistance. For the experiment, however, better results can be obtained with a receiving set where all of the parts are adjustable, and this

## The Radio Primer



Rapid Growth Over The Entire Country

One Hundred Broadcasting Stations Now Operating Daily, an Increase of 50 Per Cent in the Month

The rapid expansion of popular and commercial interest in radio telephony is portrayed in the comprehensive survey of radio in its merchandising and advertising possibilities, prepared by Arthur Wiesenberger, director of the Bureau of Reserch and Information of the National Retail Dry Goods Association. the water pipe system of your house. The wire should be fastened to the pipe with a specially made ground clamp and, if it is also feasible, should be soldered in addition.

Question—My nerial was of single wire, 30 feet long, with about 35 feet of No. 18 lead-in wire. My ground wire was also No. 18 and about 50 feet long, being attached to the water pipe. I have recently added two wires to the serial, so that it now is a three-wire serial, of about 75 feet in length. By using a piece of tested galena. I received WJZ fairly well. My serial is on top of a four-story apartment house. I. Should my latest serial be more efficient than the one-wire aerial? 2. Will a lead-in wire of No. 14 be more efficient really too small in size. It should be really too small in size. It should be received wize and in size. It should be received with and almost overnight. Nine new really too small in size. It should be received with mixed and 2. Your aerial wire received wize and in size. It should be received with mixed and and size. It should be received and 2. Your aerial wire are listed and batteries and

tions listed number 105. In the Atlantic scaboard states there are 28 stations of 360 meters, in the Middle West there are 36, in the Pacific Coast states was also for Coast States with the Coast States of Meters.

variety, radio-activity, ether and the like. Four o'clock came before the messages were decoded, and Judge O'Connell ordered a postponement until Monday to give the jury a chance to study radio technicalities. Trouble May Be in Battery

Question—I have a short-wave regenerative teacher, including two variometers and one variocoupler, using an audifotron for a detector, with one-step amplifier (IV 201). At present I am using a combined grid condenser (2005 mfd.) and grid leak (I Meg.), but do not hear even telegraph signals except when I place my fliger and thumb across the terminals of the grid condenser and leak. I have tried a second grid condenser and leak in series with the first, and also a grid condenser without a grid leak, but with no better result. Will you please suggest some remody?—J. B. Mr.

Answer—Assuming that all of your

#### Retail Association Requests Mark on Radio Apparatus

The investigating committee of the National Retail Dry Goods Association, at a meeting Thursday afternoon in this city, adopted the following reso-

Answer—Assuming that all of your connections are correct, it would seem to me that the trouble lies in the fact that your battery connections must be requested to standardize the efficiency of their various receiving sets that your battery should have the positive terminal joined next to the plate. The negative terminal, of course, is joined back to the "A" battery. Now, all that you have to do is to try first with the negative pole of the "A" battery and then if you do for the "A" battery and then if you do not get any results try it on the negative side. It seems to me that your trouble lies there.

In that all responsible manufacturers be requested to standardize the efficiency of their various receiving sets to expected to standardize the efficiency of their various receiving sets. WBAY—American Telephone and Telegraph Company, New York.

WBAV—The Erner & Hopkins Company, Columbus, Ohio.

WGM—Georgia Railway & Power company, Atlanta. ("Atlanta Constitution").

WBAQ—Myron L. Harmon, Y. M. C. A., South Bend, Ind.

WGI—lowa State College, Ames, Ind.

WGI—lowa State College, Marietta, Ohio.

WBAW—Marietta College, Marietta, Ohio.

WBAU—Republican Publishing Com-

Eliminating Interference

The investigating committee believes that all efforts possible should be put forth to conserve the confidence of the public in the radio telephone at this time while the demand is still new, in order that the business may develop steadly without serious setback.

Ohio.

WBAU—Republican Publishing Company, Hamilton, Ohio.

KNI—T. W. Smith, Eureka, Calif.

WBAX—John H. Stenger jr., Wilkes-Barre, Pa.

WCAE—Kaufmann & Baer Company, Pittsburgh.

# Question—I. Does electric light current cause more interference than alternating? 2. What is the best way to get rid of this interference? 3. Do you think I could use a loop aerial with an R. C. outfit 100 miles from Schenectady? With a good outside aerial I get Schenectady loud enough on one stage. Would the serial work better if set up outside of the house close to the room where the machine is placed?—D. K. M.

### Daily Radio Program

Mothers' Day exercises conducted by Miss Frances M. Hedden, of the New Jersey Sunday School Association; sermon, "Our Mothers," by the Rev. George C. Vincent, D. D., paster of the South Park Presbyterian Church, Newark; Sunday school lesson, by the Rev. Samuel D. Price, D. D., secretary of the World's Sunday School Association. The program includes Songs My Mother Taught Me," "Mother, My Dear," and "Lullaby," by Miss May C. Korb, soprano solo-

Literary Vespers, by Edgar 230 p. m.—Concert by the Hampton Quartet of Virginia; R. O. Purves, secretary. "Bubble Books That Sing,"

secretary.

6:30 p. m.—"Bubble Books That Sing," by Ralph Mayhew.

6:45 p. m.—"Sandman Stories."

7 p. m.—"Wonderful Tar Baby," "B'rer Rabbit and the Honey," "B'rar Fox and the Little Rabbits" and other negro dialect stories by A. C. Kraven.

7:30 p. m.—"Anthracite Mining," by D. C. Ashmead.

7:45 p. m.—"The Health of the Child," by Dr. J. N. Myers.

8 p. m.—French-Canadian Dialect Stories, by W. J. Bryden.

9 p. m.—Sacred music by an orchestrelic.

WAAT, Jersey City, 200 meters 6:57 p. m.—Tuning test.
7 p. m.—Address by W. R. Valentine, principal of the State of New Jersey Manual Training and Industrial School for Colored Youth, Subject, "The Aim and Purpose of Our School."

"The Aim and Purpose of Our School."

7:15 p. m.—Program of American folk songs and spirituals by male quartet from the Bordentown School. Ira Godwin, tenor; Jesse Hamilton, tenor; Melvin Burgess, barytone, and George Dosher, bass. (a) "Good News" (b) "Oh, Mary, Don't You Weep," (c) "What Kind of Shoes Do You Wear?" (d) "Live Humble."

7:30 p. m.—Announcements.

7:33 p. m.—Quartet. (e) "The Rosary," (f) "Why Adam Sinned," (g) "By and By," (h) "Mighty Day."

7:45 p. m.—Miss Helen Seruby, contralto soloist from the school, will sing, (a) "Deep River." Burleigh; (b) "Smilling Through," (c) "A Little Gray Home in the West."

7:50 p. m.—Quartet. (i) "Wide River." (j) "Get on Board," (k) "Couldn't Hear Nobody Pray," (l) "Ain't it a Shame," (m) "Study War no More," (n) "Heaven," (o) "O Sinner," (p) "Tis Me."

Shame?' (m) "Study War no Mo (n) "Heaven," (o) "O Sinner," "'Tis Me."

Neters
7:30 p. m.—"The Political Situation in China," by Dr. Peter Wold, Department of physics.
8 p. m.—"Smiling Through," and "The Old Road," burytone solos, by David Brockway; "Scarf Dance." and "Song of India," piano solos by William Howlett.

WBZ, Springfield, Mass, (360 meters) 3 p. m.—Radio chapel at station WBZ, conducted by Rev. W. B. Grant.
8 p. m.—Church services, by Rev. Dr. H. Paul Douglas. WGI, Medford Hillside, Mass (360

meters)
7:45 p. m.—"A Chance to Grow Up,"
by Henry Lawrence Southwick, President Emerson College of Oratory,
8 p. m.—Radio church service, Sermon
by the Rev. H. Douglas Pierce, pastor Winter Hill Baptist Church, "A
Commission for Life," assisted by the
church male quartet, William F. Pollard jr., Leonard O. Waters, tenors,
W. S. Trefry, Francis Howland,
basses; selections, "The Church in
the Wildwood," "For You and for
Me"; solo by William F. Pollard jr.,
"Mother of Mine."
8:30 p. m.—Master Fred Sawin, boy
soprano soloist, Church of the Advent, Back Bay; accompanied by E.
Lewis Dunham.
KDKA, Pittsburgh (360 meters)

KDKA, Pittsburgh (360 meters) 9:45 a. m. - Services of the Point Breeze Presbyterian Church, Fifth and Penn avenues, Pittsburgh, Dr. P H. Barker minister. :45 p. m.—Children's Bible story.

1:45 p. m.—Children's Bible story.
 2 p. m.—Radio chapel at Station KDKA, conducted by the Rev. C. A. Sanderbeck of St. Paul's R. C. Cathedral,

beck of St. Paul's R. C. Cathedral, Pittsburgh.
6:30 p. m.—Services of the Calvary. Episcopal Church. Pittsburgh, the Rev. E. J. Van Etten rector.

KYW, Chicago (360 meters)
3:30 p. m.—Radio chapel service conducted by the Rev. Arthur Frederick Ewert of the Central Presbyterian Church, of Chicago; musical program conducted by William R. Riddell, musical director of the Central Presbyterian Church, and Jeane Burgess. Church, and Jeane Burgess

Government Licenses 23

More Broadcasting Stations Twenty-three new broadcasting sta-

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Pittsburgh,
WCAB—Newburgh News Print and
Publishing Company, Newburgh, N. Y.
WBAZ—Times - Despatch Publishing
Company, Richmond, Va.
KIX—Tribune Publishing Company,
Oakland, Calif.
KOJ—University of Nevada, Reno,
Nev.

## WJZ, Newark (360 meters) m.-Radio Chapel Services;

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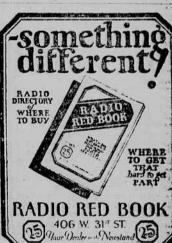
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